

REMARKS

The Official Action dated September 6, 2005 has been received and its contents carefully noted. In view thereof, claims 1 and 10 have been amended in order to better define that which Applicants regard as the invention. As previously, claims 1, 4, 7, 8 and 10-17 are presently pending in the instant application.

With reference now to the Official Action and particularly page 2 thereof, claims 1, 4, 7-11, 13 and 17 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,641,625 issued to Clawson et al. in view of U.S. Patent No. 5,160,456 issued to Lahn et al. This rejection is respectfully traversed in that the combination proposed by the Examiner neither discloses nor suggests that which is presently set forth by Applicants' claimed invention.

As can be seen from the foregoing amendments, each of independent claims 1 and 10 have been amended in order to recite a hydrogen gas generator for generating hydrogen from a source fuel of the hydrogen family, oxygen and steam with the hydrogen gas generator comprising a fuel reformer with a catalyst which exhibits an activity to a potential oxidation reaction of the source fuel and a shift reactor which reduces by a water gas shift reaction a CO concentration of a gas supplied from the fuel reformer. This distinction will become apparent from the following description.

In a previous Office Action, the Examiner had rejected claims 1, 4, 9 and 10 noting that Clawson et al. disclosed in column 4, lines 45-49 setting the CO₂/CO ratio in an outlet gas of the fuel reformer to be 0.2 or more. The Examiner again repeats this rejection on page 3 of the present Office Action. However, this portion of the Clawson, et al. reference states that the CO concentration of the outlet gas of a shift reactor is 0.5 mol percent. This shift reactor is reference number LTS 36 in Fig. 2 and is not the reformer, which consists of W691505.1

POx34 and SR35. That is, it is an outlet gas of the shift reactor LTS 36, not of the reformer POx34 and SR35, whose CO concentration is 0.5 mol percent. This is contrary to applicant's claimed invention wherein the reformer 5 as illustrated in Fig. 1 and in accordance with each of independent claims 1 and 10 does not include a hot shift reactor such as hot shift reactor 7 illustrated in Fig. 1 or a cold shift reactor such as cold shift reactor illustrated in Fig. 1. That is, the reformer 5 of the present invention corresponds to the POx34 and the SR35 of the Clawson et al. reference. More importantly, the water gas shift reaction is controlled such that the CO₂/CO ratio which is the ratio of CO₂ to CO in the outlet gas of the fuel reformer is not less than 0.2 in accordance with the Applicants' claimed invention. Accordingly, as the Examiner can readily appreciate, the patent to Clawson et al. taken alone or in view of the teachings of Lahn et al. fails to disclose or remotely suggest that which is presently set forth by applicant's claim as recited in each of the independent claims 1 and 10, as well as those claims which depend therefrom.

With reference now to paragraph 2 of the Office Action, claims 12 and 13 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Clawson et al. '625 in view of Lahn, et al. 456 as applied to claim 11 above and further in view of U.S. Patent No. 4,186,801 issued to Madgavkar et al. This rejection is respectfully traversed in that the patent to Madgavkar et al. fails to overcome the aforementioned shortcomings associated with the combination of Clawson et al. in view of Lahn et al. as proposed by the Examiner.

Madagavkar may disclose that an oxidation catalyst is carried by an inner support structure; however, this reference clearly fails to overcome the aforementioned shortcomings associated with the teachings of Clawson et al. in view of Lahn et al. Accordingly, it is respectfully submitted that Applicants' claimed invention as set forth in each of dependant

claims 12 and 13 which include all limitations of independent claim 1, are likewise believed to be in proper condition for allowance.

With reference to paragraph 3 of the Office Action, claim 14 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Clawson et al. 625 in view of Lahn, et al. '456 as applied in Claim 13 and further in view of U.S. Patent No. 6,165,633 issued to Negishi. This rejection is likewise respectfully traversed in that Negishi does nothing to overcome the aforementioned shortcomings associated with Clawson '625 and Lahn, et al.

Again, while Negishi may teach that the oxidizing exhaust gas from the oxygen electrode is recycled to an air tank and then to a reformer to maximize utilization of the fuel, this reference fails to overcome the aforementioned shortcomings associated with Clawson. Accordingly, for the reasons discussed hereinabove, it is respectfully submitted that dependant claim 14 is likewise in proper condition for allowance.

As to claims 15 and 16, these claims have been rejected under 35 U.S.C. 103(a) as being unpatentable over Clawson '625 in view of Lahn, et al. '456 as applied to claim 13, and further in view of U.S. Patent No. 5,290,641 issued to Harashima. Again, this rejection is respectfully traversed in that the patent to Harashima fails to overcome the aforementioned shortcomings associated with Clawson '625 when taken alone or in view of the teachings of Lahn, et al., '456.

That is, while Harashima may disclose a control system which measures the output current from the power inverter system and compares the output current with the reference point, this reference fails to disclose or suggest those features of each of independent claims 1 and 10 referred to hereinabove which are lacking in the combination of Clawson '625 in view of Lahn, et al. 456. Accordingly, for the reasons discussed in detail hereinabove, it is respectfully submitted that Applicants' claimed invention as set forth in claims 15 and 16

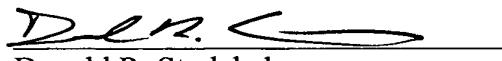
which include all the limitations of each of independent claims 1 and 10 clearly distinguish over the combination proposed by the Examiner and are in proper condition for allowance.

With respect to the Examiner's response to Applicants' previous arguments, and particularly with respect to the discussion that Clawson fails to disclose a ratio of CO₂/CO being less than 0.2, as noted hereinabove the portion of the Clawson reference referred to by the Examiner, that being column 4, lines 45-49, it clearly sets forth that the CO₂ concentration of the outlet gas of a shift reactor is 0.5 mol percent. The shift reactor is the structure set forth in Fig. 2 as LTS 36. It is not a reformer which in accordance with Clawson consists of POx34 and SR35. It is the outlet gas of the LTS 36, not the reformer, which is made up of POx34 and SR35, which includes a CO concentration of 0.5 mol percent. Accordingly, it is respectfully submitted that Applicants' claimed invention as set forth in each of independent claims 1 and 10, as well as those claims which depend therefrom clearly distinguishes over the combination of references proposed by the Examiner and are in proper condition for allowance.

Therefore, in view of the foregoing, we respectfully requested that the rejections of record be reconsidered and withdrawn by the Examiner, that claims 1, 4, 7, 8 and 10-17 be allowed, that the application be passed to issue.

Should the Examiner feel a conference would be of benefit in expediting the prosecution in the instant application, he is hereby invited to telephone counsel to arrange such a conference.

Respectfully submitted,


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